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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/708,952	BENTWICH, ITZHAK	
	Examiner	Art Unit	
	Amy H. Bowman	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-24* is/are pending in the application.

4a) Of the above claim(s) *17,20 and 24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16, 18, 19, and 21-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/4/06, 10/4/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's election with traverse of SEQ ID NO: 14051 in the reply filed on 6/18/07 is acknowledged. Furthermore, applicant's election without traverse of group I, claims 16, 18, 19 and 21-23, in the reply filed on 9/19/07 is acknowledged.

With respect to the traversal of sequences in the reply filed on 6/18/07, applicant asserts that the members of the claimed Markush group are sufficiently few in number and closely related that a search and examination of the entire claims would not be a serious burden even though the members of the Markush group are directed to independent and distinct sequences. Contrary to applicant's assertion, each of the precursor polycistronic nucleotide sequences recited in claims 17 and 20 and nucleic acid capable of binding a target mRNA of claims 18 and 21 are separate and distinct sequences based on different sequences of nucleotides. Although each of the sequences are derived from SEQ ID NO: 399738, each of the sequences comprise unique nucleotide sequences and do not contain a common structural core. Each of the specific sequences requires a separate and distinct search and corresponding examination. However, as explained in the restriction requirement mailed on 4/17/07, SEQ ID NO: 399738 in Claim 16 links SEQ ID NOs: 399404, 399423, 399424, 399427, 399441, 14005, 14011, 14020, 14039, 14046, and 14051. The restriction requirement between the linked inventions is subject to the nonallowance of the linking claim(s), claim 16. Upon the indication of allowability of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise requiring all the limitations of the allowable linking claim(s)

will be rejoined and fully examined for patentability in accordance with 37 CFR 1.104 Claims that require all the limitations of an allowable linking claim will be entered as a matter of right if the amendment is presented prior to final rejection or allowance, whichever is earlier. Amendments submitted after final rejection are governed by 37 CFR 1.116; amendments submitted after allowance are governed by 37 CFR 1.312.

The requirement is still deemed proper and is therefore made FINAL.

Claims 17, 20 and 24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement between sequences in the reply filed on 6/18/07. Election was made **without** traverse of group I, claims 16, 18, 19 and 21-23, in the reply filed on 9/19/07 (reply to supplemental restriction requirement mailed on 9/6/07).

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 10/4/06 have been considered by the examiner.

Sequence Compliance

The specification is objected to because this application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825 because there are

sequences in the specification on pages 117-119, 131 and 132, as well as in the drawings filed on 4/2/04 at Figures 13b, 14b, 15a, and 16a, d, and e, for example that do not contain a SEQ ID NO.

A complete response to this office action must correct the defects cited above regarding compliance with the sequence rules and a response to the action on the merits which follows.

The aforementioned instance of failure to comply is not intended as an exhaustive list of all such potential failures to comply in the instant application. Applicants are encouraged to thoroughly review the application to ensure that the entire application is in full compliance with all sequence rules. This requirement will not be held in abeyance.

Drawings

The drawings filed on 4/2/04 are objected to because they contain sequences that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2), but each sequence does not contain a SEQ ID NO., as explained in the "Sequence Compliance" section above. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the

appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code in paragraph [0178] of the specification, for example. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Appropriate correction is required.

The disclosure is objected to because of the following informalities: it is noted that the word "structure" is misspelled as "sturucture" in paragraph [0050] in the specification.

Applicant's cooperation is requested in reviewing the entire specification and correcting any errors of which applicant may become aware.

Appropriate correction is required.

Priority

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994). The disclosure of the prior-filed applications fail to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. No support could be found in each of the prior-filed applications for an isolated nucleic acid consisting of 19-140 nucleotides wherein the sequence of the nucleic acid comprises (a) at least 19 consecutive nucleotides of SEQ ID NO: 399738; (b) an RNA equivalent of (a); (c) a sequence at least 80% identical to (a) or (b); or (d) the complement of any one of (a)-(c). Furthermore, the prior-filed

applications do not teach that the at least 19 consecutive nucleotides is of a sequence as set forth in SEQ ID NO: 14051.

Therefore, the instant claims are accorded an effective filing date of 4/2/04, the filing date of the instant application. Should applicant disagree, applicant is encouraged to point out with particularity by page and line number where such support might exist for each claim limitation in each of the priority documents.

Foreign Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Israel on 11/26/03. It is noted, however, that the examiner's efforts to locate the document have failed and the applicant has not filed a certified copy of the PCT/IL03/09998 application as required by 35 U.S.C. 119(b). Therefore, the document is not of record.

Claim Rejections - 35 USC § 101 and 112, First Paragraph

The following is a quotation of 35 U.S.C. 101:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 16, 18, 19 and 21-23 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility, a credible asserted utility, or a well established utility.

The claims are drawn to an isolated nucleic acid consisting of 19-140 nucleotides, wherein the sequence of the nucleic acid comprises a) at least 19 consecutive nucleotides of SEQ ID NO: 399738; b) an RNA equivalent of (a); c) a sequence at least 80% identical to (a) or (b); or d) the complement of any one of (a)-(c). Furthermore, the claims recite that the at least 19 consecutive nucleotides is of a sequence as set forth in SEQ ID NO: 14051. Also claimed are vectors comprising an insert consisting of the nucleic acid.

The specification teaches that Micro RNAs (miRNAs), are short ~22nt non-coding regulatory RNA oligonucleotides, found in a wide range of species, believed to function as specific gene translation repressors, sometimes involved in cell-differentiation (see paragraph [0024]).

The specification discloses that "The present invention relates to a group of bioinformatically detectable novel viral oligonucleotides and to a group of bioinformatically detectable novel human oligonucleotides associated with viral infections, both are identified here as Genomic Address Messenger or GAM oligonucleotides. All of which are believed to be related to the micro RNA (miRNA) group of oligonucleotides" (see paragraphs [0022] and [0023]).

The specification discloses that "Additionally, the present invention relates to a novel group of bioinformatically detectable viral regulatory RNA oligonucleotides, which

repress expression of viral target genes, by means of complementary hybridization to binding sites in untranslated regions of these viral target genes. It is believed that this novel group of viral oligonucleotides represents a pervasive novel internal viral regulation mechanism, and therefore knowledge of this novel group of viral oligonucleotides may be useful in preventing and treating viral diseases. " (see paragraph [0035]).

The specification discloses that bioinformatically detectable oligonucleotides have a sequence selected from the group consisting of SEQ ID NOs: 1-14456" (see paragraph [0054].

The specification discloses that GAMs represent precursor miRNAs or miRNA-like sequences encoded by a bacterial and/or human genome. Such sequences are predicted to have a hairpin like structure and to give rise to short, ~22-nt RNAs, which presumably provide gene repression activity.

The specification teaches how to detect and validate the expression of potential GAMs in cells. The specification discloses that GAM genes encode GAM precursor RNAs, which have structural similarities to miRNA genes. The specification teaches that the GAM precursors look like miRNA genes because they don't encode a protein and they have two-dimensional hairpin like structure, which is typical of RNA encoded by miRNA genes (see paragraph [0084]).

However, the specification provides no evidence for these assertions. Moreover, the specification discloses a multitude of sequences that have similar structural characteristics such as secondary hairpin folding to MIR precursor hairpins. However,

the specification does not provide any evidence for a utility of the instantly recited sequences, SEQ ID NOs: 399738 and 14051. Applicant is broadly asserting a utility for a multitude of sequences based on miRNA-like structure.

Indeed, the asserted utility of these and thousands of other miRNA-like sequences appears to be based purely on bioinformatic methods for predicting RNA folding and potential gene targets.

Krutzfeldt et al. (Nature Genetics, 2006, 38: S14-S19) state that, in general, the basis for these types of prediction programs is the degree of sequence complementarity between a miRNA and a target UTR, including the presence of a consecutive string of base pairs at the 5' end of the miRNA known as a 'seed' or 'nucleus', and the cross-species conservation of this binding site. On average, 200 genes are predicted to be regulated by a single miRNA. The authors further state that reviewing the data provided by these algorithms determining candidate targets uncovers the entire gamut of gene categories, such as transcription factors, protein kinases, vesicular trafficking molecules and membrane receptors, suggesting that there is no apparent bias towards one particular function.

Accordingly, while the ability to predict hairpin-like structures and potential gene targets from genomic sequence information appears to be within the state of the art, Krutzfeldt et al. teach that validating the true biological function of any predicted miRNA sequence requires analyzing miRNA expression patterns, as well as testing the effects of miRNA overexpression and underexpression under different conditions in living cells *in vitro* and *in vivo*.

Thus, while these methods, too, are within the level of skill in the art, Applicant has presented no evidence that any of these validation techniques have, in fact, been carried out with regard to the instantly claimed sequences. There is no evidence verifying the expression of instant SEQ ID NO: 399738 comprising SEQ ID NO: 14051 in any cell line much less a human cell line or that its expression or absence thereof has been correlated any disease, bacterial or otherwise, or trait.

Further, Applicant has not provided evidence that instant sequences are up or down regulated in any cell or tissue, animal or bacteria, or plays any role in the predisposition of human or mammalian cells to infection.

Applicant's asserted utility appears to be based only on the predicted structure and sequence complementarity of sequences meeting the criteria of "GAM" sequences and on various reports in the prior art describing various genes and their correlation to diseases. From this, Applicant appears to extrapolate and thereby assert that inhibiting or somehow altering a target gene is beneficial, and that because the instant sequences have a predicted miRNA-like precursor structure and a sequence that is complementarity to some target sequence, it plays a role in inhibiting a target gene and treating a disease.

However, this assertion is not credible. While sequences within SEQ ID NO: 399738 may have complementarity to a gene, applicant has not presented any evidence or established any nexus that SEQ ID NO: 399738 or sequences therein do target and/or inhibit a specific gene, much less that the expression or inhibition of

expression of the instant sequences may be used to prevent or treat a disease associated with a target sequence. The asserted utility is speculative.

While the asserted utility may be credible and specific, it is not substantial. The specification does not establish a nexus between any particular disease state, bacterial process, or host cell process, and an altered level or form of the claimed sequences that would enable one of skill to use the instant sequences, or sequences meeting the broad instantly recited structural limitations, to achieve a beneficial effect.

In addition to the bioinformatically predicted utility, described above, the specification generally asserts that Genomic Address Messenger sequences may be used in various ways. However, none of these asserted uses meet the three-pronged requirement of 35 U.S.C. § 101 regarding utility, namely, that the asserted utility be credible, specific and substantial.

For example, the specification generally asserts that a utility of the novel oligonucleotides of the present invention is detection of GAM oligonucleotides and of GR (Genomic Record) polynucleotides—that diagnosis of expression of oligonucleotides of the present invention may be useful for research purposes, in order to further understand the connection between the novel oligonucleotides of the present invention and bacterial diseases, for disease diagnosis and prevention purposes, and for monitoring disease progress.

This asserted utility is neither specific nor substantial. Since the same can be done with any polynucleotide, the asserted utility is not specific. Also, because the specification does not disclose any specific function for SEQ ID NO: 399738, it is

unclear how or why one of skill in the art would use the information obtained by measuring SEQ ID NO: 399738 expression for any particular purpose aside from general research. Further, since applicant does not identify whether abnormal SEQ ID NO: 399738 expression is causally related to any disease or condition, or whether abnormal SEQ ID NO: 399738 (e.g., a polymorphism) predisposes anyone to any disease or condition such as infection, the only recognizable utility of diagnostic probes is as tools for scientific research, and with no indication that anything useful will be discovered. Therefore, the asserted utility is not substantial since the application provides no teaching regarding how to use the probes or expression data for any practical purpose beyond the art-recognized methods of gene expression analysis.

Accordingly, polynucleotide probes derived from the instant invention are simply research intermediates that may help scientists isolate the gene and conduct further experimentation. Such probes can only be used to detect or amplify the genetic material having the same structure as the probes themselves. The probes would provide no immediate, real-world information about the overall structure or function of the underlying gene, for example, aside from its expression patterns.

Neither the instant specification nor the prior art presents any evidence that instant SEQ ID NO: 399738, much less the recited RNA equivalents thereof have any specific biological function. No evidence or information is found either in the specification or the prior art linking SEQ ID NO: 399738 with the modulation of any bacterial or mammalian gene or with the conditions that render cells or hosts susceptible to any bacterial infection, for example. No convincing evidence is found

teaching any biological function for SEQ ID NO: 399738 at all. In fact, no evidence is found suggesting or stating that SEQ ID NO: 399738 has been made, isolated, cloned, detected, expressed, or even analyzed in a living cell *in vitro* or *in vivo.*

In summary, no biological or biochemical function has been assigned to SEQ ID NO: 399738 or sequences meeting the instant structural limitations, apart from the general assertions that it, like the thousands of other sequences described in the sequence listing, may correspond to an miRNA precursor based on folding and have some direct or indirect relation to bacterial disease and/or life cycle.

Thus, Applicant has not demonstrated that SEQ ID NO: 399738 or sequences meeting the instant structural limitations may be used in any mode of therapy or as a general means to define and treat bacterial infections.

Thus, the proposed utility of SEQ ID NO: 399738 or sequences meeting the instant structural limitations as a therapeutic target or agent, or material resource for preparing diagnostic probes, vectors, a host cells, are simply starting points for further research and investigation into potential practical uses of the claimed polynucleotide.

Brenner v. Manson, 148 U.S.P.Q. 689 (U.S. 1966)

> The basic quid pro quo contemplated by the Constitution and the Congress for granting a patent monopoly is the benefit derived by the public from an invention with substantial utility. Unless and until a process is refined and developed to this point—where specific benefit exists in currently available form—there is insufficient justification for permitting an applicant to engross what may prove to be a broad field.
>
> ...a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion.

Thus, the specification does not teach a specific, substantial, or credible utility for SEQ ID NO: 399738, much less other sequences meeting the instant structural limitations or any of the RNA equivalents or complements of SEQ ID NO: 399738. No target gene has been conclusively identified nor has any evidence been presented linking SEQ ID NO: 399738 or fragments thereof with any target gene, bacterial disease or infection, biological function or disorder. A credible, specific, and substantial nexus has not been established.

***

Claims 16, 18, 19 and 21-23 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific, substantial, and credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Without further guidance, one of skill in the art would have to practice a substantial amount of trial and error experimentation, an amount considered undue and not routine, to practice the instantly claimed invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16, 18, 19 and 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 is directed to an isolated nucleic acid consisting of 19-140 nucleotides wherein the sequence of the nucleic acid "comprises" (a), (b), (c) or (d). Alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. One acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being "selected from the group consisting of A, B and C." See Ex parte Markush, 1925 C.D. 126 (Comm'r Pat. 1925). Ex parte Markush sanctions claiming a genus expressed as a group consisting of certain specified materials. It appears that the instant claims are directed to a Markush group. However, It is improper to use the term "comprising" instead of "consisting of." (see MPEP 2173.05(h)).

Claims 18, 19 and 21-23 are rejected because they depend from claim 16.

Claim 18 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18 recites the limitation "the at least Y nucleotides" in claim 16. There is insufficient antecedent basis for this limitation in the claim. Recitation of "the at least Y consecutive nucleotides" would obviate this rejection.

Claims 16, 18, 19 and 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 recites "an RNA equivalent of (a)". The scope and meaning the term "an RNA equivalent" is unclear. Neither the claims nor the specification clearly defines the meaning of the term "equivalent" as it is to be understood in the context of the instantly claimed invention—that is, no guidance is given as to whether equivalency is based on structure, function, or both.

Furthermore, it is not understood what is meant by an RNA equivalent of (a) because SEQ ID NO: 399738, as recited in part (a) of claim 16 is a RNA sequence. The claims are indefinite because it is not understood what is meant by an RNA equivalent of a RNA sequence.

Thus, one of skill in the art would not be adequately apprised of the metes and bounds of the instant claims.

Claims 18, 19 and 21-23 are rejected because they depend from claim 16.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 16, 18, 19 and 21-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **This is a new matter rejection.**

The amended claims are directed to an isolated nucleic acid consisting of 19-140 nucleotides wherein the sequence of the nucleic acid comprises (a) at least 19 consecutive nucleotides of SEQ ID NO: 399738; (b) an RNA equivalent of (a); (c) a sequence at least 80% identical to (a) or (b); or (d) the complement of any one of (a)-(c). Furthermore, the claims recite that the at least 19 consecutive nucleotides is of a sequence as set forth in SEQ ID NO: 14051.

However, the specification does not contemplate each of the above limitations that were newly introduced into the claims filed on 3/19/07. In applicant's arguments filed 3/19/07, applicant asserts that support for the size limitation 19-140 nucleotides can be found throughout the specification as originally filed. However, upon review of the specification, support cannot be found for the instant size range or the size range in the context of the instant claims.

Applicant points to Tables 2 and 10 for support for the nucleic acid comprising at least 19 consecutive nucleotides of SEQ ID NO: 399738, as recited in instant claim 16. However, a disclosure of SEQ ID NO: 399738 in the tables as GR204 is not support for the nucleic acid comprising at least 19 consecutive nucleotides of SEQ ID NO: 399738. Furthermore, applicant points to originally filed claim 1 for support for thee imitation that the sequence is at least 80% identical to (a) or (b). However, originally filed claim 1 recites that the oligonucleotide has at least 80% sequence identity with a nucleotide

sequence selected from the group consisting of SEQ ID NOs: 1-14456, which is not support for a nucleic acid being at least 80% identical to at least 19 consecutive nucleotides of SEQ ID NO: 399738, or an RNA equivalent thereof.

Additionally, applicant asserts that support for an RNA equivalent or for the complement may be found throughout the application as filed. However, support cannot be located for these limitations in the context of the instant claim. Applicant points to support for the sequences recited in instant claims 17, 18, 20 and 21 in the sequence listing. However, the mere presence of these sequences in the sequence listing does not offer support for the sequences in the context of the specific structural limitations of the instant claims.

Applicant points to claim 16 for support for claim 19 that recites that X=Y. Although X may be equivalent to Y in claim 16, claim 16 does not offer support for the specific limitation X=Y, as recited in claim 19.

Applicant points to paragraph [0037] of the specification for support for a vector comprising an insert, as recited in claims 22 and 23. It is noted that paragraph [0037] of the specification does teach a limitation of a vector including a DNA, but does not teach vectors including RNA equivalents, as recited in instant claim 16, from which claims 22 and 23 depend.

Similarly, applicant points to paragraph 0028 of the specification for support for a probe comprising an insert, as recited in newly added claims 31 and 32. It is noted that paragraph 0028 of the specification does teach a limitation of a probe including the DNA, but does not teach probes including RNA equivalents, as encompassed by claims

17 and 20 from which claims 31 and 32 depend, respectively. The gene expression detection system of claims 35 and 36 have this same problem because the claims depend from claims 31 and 32, respectively.

Applicant points to paragraph [0036] of the instant specification for support for the method for detecting a nucleic acid as recited in claim 24, which recites two specific method steps. However, paragraph [0036] of the instant specification reads, "In various preferred embodiments, the present invention seeks to provide improved method and system for detection and prevention of viral diseases, which are mediated by the abovementioned groups of novel oligonucleotides." There is no mention of the specific method recited in instant claim 24.

Furthermore, there is no support for each of the newly added claim limitations in the claimed priority documents. Therefore, the effective filing date of the instant claims is considered, for purposes of prior art, to be 4/2/04, which is the filing date of the instant application.

A review of the specification, and particularly at the pages pointed to by applicant, does not reveal support for where the various claim amendments are found. Should applicant disagree, applicants are encouraged to point out with particularity by page and line number where such support might exist for each claim limitation added in the amended claims filed on 3/19/07.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Edwards et al. (US 5,578,444).

The instant claims are directed to an isolated nucleic acid consisting of 19-140 nucleotides wherein the sequence comprises (a) at least 19 consecutive nucleotides of SEQ ID NO: 399738; (b) an RNA equivalent of (a); (c) a sequence at least 80% identical to (a) or (b); or (d) the complement of any one of (a)-(c). The claims are further directed to a vector comprising an insert consisting of the nucleic acid.

Edwards et al. teach an isolated nucleic acid sequence consisting of 50 nucleotides wherein the sequence comprises the complement of a sequence that is approximately 90.48% identical to 21 consecutive nucleotides of instant SEQ ID NO: 399738 (see SEQ ID NO: 541 of Edwards et al., wherein nucleotides 30-50 are 90.48% complementary to nucleotides 4342-4362 of instant SEQ ID NO: 399738 (19/21=90.48); see sequence results in SCORE labeled as "20070827_082132_us-10-708-952b-399738_copy_1_7500.rng19-140.rni", result # 1). Edwards et al. teaches vectors comprising the nucleic acid sequences of the invention.

Therefore, the instant invention is anticipated by Edwards et al.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In *re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 16 and 19 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 11/511,035. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims and the claims of application '035 are directed to isolated nucleic acid sequences that overlap in scope. The instantly recited sequences overlap in scope with the sequences recited in claim 1 of application '035. Specifically, SEQ ID NOs: 884, 947-949, 998, 1134 and 1144 of application '035 overlap in scope with instant SEQ ID NO: 399738 (see sequence results in SCORE labeled as "20070827_082134_us-10-708-952b-399738_copy_1_7500.rng19-140.rnpbm", result #s 2, 4, 8, 11, and 13-15). Therefore,

the instant sequences and the sequences of application '035 are obvious in view of each other.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 16, 18, 19 and 21-23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 and 8 of copending Application No. 10/605,838. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims are directed to sequences that are disclosed by the instant specification as a bioinformatically detectable sequences. The claims of the '838 application are directed to bioinformatically detectable gene sequences having overlapping structural limitations of the instant claims. Therefore, the instant claims are a species of and would anticipate the generic claims of the '838 application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Furthermore, the following serial numbers of co-pending applications contain claims in which an obviousness-type double patenting rejection might be applied or contain claims for which it cannot be determined if the claimed sequences conflict:

11/130,645
10/535,164

10/536,560
10/708,204
10/708,951
10/708,952
11/418,870

It is Applicants' burden to file appropriate terminal disclaimers for all relevant applications listed above. Furthermore, if Applicants are aware of any pending applications or patents, which are not listed above, it is Applicants' duty to disclose these applications or patents, and to submit an appropriate terminal disclaimer over these applications or patents as pertinent to the instant invention.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy H. Bowman whose telephone number is (571) 272-0755. The examiner can normally be reached on Monday-Thursday 6:30 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Schultz can be reached on (571) 272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Amy H. Bowman/
Patent Examiner
Art Unit 1635